AMENDMENT TO CLAIMS

In the Claims

Please **AMEND** claims 69 and 82 as shown below.

Please **CANCEL** claims 49-68 without prejudice or disclaimer.

A copy of all pending claims and a status of the claims are provided below.

1-68 (Cancelled).

69. (Currently Amended) A method for producing a nanocomposite film, said method comprising the steps of:

contacting a substrate with at least one nanoparticle species by immersing the substrate in a solution containing the at least one nanoparticle species to form a nanoparticle layer on the substrate;

contacting the nanoparticle-layered substrate with at least one polymer ~~species~~ by immersing the nanoparticle-layered substrate into a solution containing the at least one polymer ~~species~~ to form a polymer layer on the nanoparticle-layered substrate to form an elastomeric film on the substrate;

contacting the surface of the nanocomposite film with a resin; and

treating the resin on the nanocomposite film to form an abrasion resistant matrix on the nanocomposite film.

70. (Previously Presented) The method of claim 69, further comprising the step of removing the resin-coated nanocomposite film from the substrate to produce a free-standing resin-coated nanocomposite film.

71. (Previously Presented) The method of claim 69, wherein the nanocomposite film is functionalized by contacting a surface of the nanocomposite film with a crosslinker.

72. (Previously Presented) The method of claim 69, wherein the resin in said resin contacting step is an abrasion resistant resin selected from the group consisting of thermosetting resins, photosetting resins, phenolformaldehyde, phenol resins, epoxy resins, polysiloxane resins, polyurethane, and poly(etherurethane) resins.

73. (Previously Presented) The method of claim 69, wherein said resin contacting step comprises applying the resin by a method selected from the group consisting of spin coating, spraying, web-based processes, ink jet printing, and a combination thereof.

74. (Previously Presented) The method of claim 69, wherein said treating step comprises heating the resin on the nanocomposite film.

75. (Previously Presented) The method of claim 69, wherein said treating step comprises irradiating the resin with at least one of infrared light, UV light or visible light.

76. (Previously Presented) The method of claim 69, wherein said treating step comprises drying the resin.

77. (Previously Presented) The method of claim 69, wherein the resin in said resin contacting step forms a transparent coating.

78. (Previously Presented) The method of claim 69, wherein the nanoparticles in the nanoparticles layer are covalently integrated with the resin to form an abrasion resistant coating.

79. (Previously Presented) The method of claim 70, wherein said removing step comprises removing the resin-coated nanocomposite film from the substrate by a method selected from the groups consisting of chemical dissolution of the substrate, mechanical removal, subambient removal, heating, irradiating with UV light, irradiating with infrared light, irradiating with visible light, and a combination thereof.

80. (Previously Presented) The method of claim 69, further comprising the step of forming at least one crosslinker layer by contacting at least one of the substrate, the nanoparticle layer or the polymer layer with at least one crosslinker species to form a crosslinker layer.

81. (Previously Presented) The method of claim 69, further comprising the step of functionalizing the substrate with a polymer.

82. (Currently Amended) The method of claim 69, wherein the polymer ~~species~~ is selected from the group consisting of one or more of poly(urethane), poly(etherurethane), poly(esterurethane), poly(urethane)-co- (siloxane), and poly(dimethyl-co-methylhydrido-co-3-cyanopropyl, methyl) siloxane.

83. (Previously Presented) The method of claim 69, wherein the nanoparticle in said substrate contacting step is selected from the group consisting of metallic nanoparticles, semiconducting nanoparticles, magnetic nanoparticles, ceramic nanoparticles, and dielectric nanoparticles, and a combination thereof.

84. (Previously Presented) The method of claim 69, wherein the substrate in said substrate contacting step is selected from the group consisting of a glass slide, single crystal silicon, polycarbonate, kapton, polyethylene rigid polymer materials, flexible polymer materials,

ceramics, metal surfaces, etched surfaces, functionalized surfaces, and non-functionalized surfaces.

85. (Previously Presented) The method of claim 80, wherein the at least one crosslinker layer has at least two functional groups selected from the group consisting of hydroxyl groups, amino groups, carboxyl groups, carboxylic acid anhydride groups, mercapto groups, hydrosilicon groups and a combination thereof.

86. (Previously Presented) The method of claim 80, wherein the crosslinker layer comprises mercaptoethanol.

87. (Previously Presented) The method of claim 69, wherein the nanoparticle species in said substrate contacting step is selected from the group consisting of a gold nanoparticle, a gold alloy nanoparticle, a gold core shell nanoparticle, a silver nanoparticle, a silver alloy nanoparticle, a silver core shell nanoparticle, a platinum nanoparticle, a platinum alloy nanoparticle, a platinum core shell nanoparticle, a palladium nanoparticle, a palladium alloy nanoparticle, a palladium core shell nanoparticle, a copper nanoparticle, a copper alloy nanoparticle, a copper core shell nanoparticle, and a combination thereof.

88. (Previously Presented) The method of claim 69, wherein the nanoparticle species has a diameter in the range of about 1 nm to about 1000 nm.